TIBIAL COMPONENT

FIELD OF THE INVENTION

This invention relates to a tibial component, suitable for use in an orthopedic prosthesis, and more particularly in a prosthesis for resurfacing chondral surfaces of the knee joint.

BACKGROUND OF THE INVENTION

Various types of knee prostheses are known and used in the field of orthopedic surgery in treating a damaged or injured knee. Specifically, the present applicant is the inventor of ORTHOPEDIC PROSTHESIS described more fully in South African patent 2011/00697 filed 27 Jan. 2011, and claiming earliest priority 24 Jul. 2008, corresponding to PCT/IB2009/053224, as well as South African provisional patent application 2011/03673 dated 19 May 2011 entitled A SCORING SYSTEM AND METHOD FOR EVALUATING INJURY TO A JOINT which has matured into South African patent 2012/06206, each of which descriptions are incorporated herein in their entirety by reference.

Treatment options available in chondral resurfacing procedures of knee joints are unicompartmental knee arthroplasty (UKA) and total knee arthroplasty (TKA). In both UKA and TKA, a typical knee prosthesis comprises a metallic femoral component, a metallic tibial component and an ultra high molecular weight polyethylene (UHMWPE) spacer bearing (or bearing insert) disposed therebetween.

The femoral component, as the name suggests, is for fixation to the distal femur and the tibial component is for fixation to the proximal tibia.

Historically, the use of a fixed spacer bearing, wherein the spacer bearing is fixed to the tibial component, was the preferred combination. However, developments has seen a preference shift to a mobile spacer bearing, wherein the spacer bearing is allowed some degree of movement, in a slidable or partially rotatory fashion relative to the tibial component. It is now apparent that the selection of a mobile or fixed spacer bearing depends on the condition of the particular subject's knee and notably the degree of laxation of the knee ligamenture, which is adjudged intra-operatively. Ultimately, the final decision on whether to use a mobile bearing or fixed bearing, as well as which of UKA or TKA is appropriate, is made intra-operatively. For instance, a key indicator or contra-indicator as the case may be, would depend on a visual examination of the anterior cruciate ligament.

Further, UKA is the preferred form of treatment in diseased or injured knees having a chondral deficiency. In more severe presentations, a TKA is indicated. In either treatment option (viz. UKA or TKA), there is a preparatory step for prosthesis insertion that requires bone resection. Patient build and other anatomical considerations would indicate the selection of a particular size of femoral component and tibial component. The selection of a suitably sized spacer bearing is properly determined once the femoral and tibial components are inserted. This determination is finally done during the surgical procedure, and not before. Also, dependant on a visual inspection of the internal condition of the particular patient's knee, either a mobile or fixed spacer bearing is indicated. A distinct disadvantage may precipitate where a physician anticipates the use of a mobile spacer bearing, and an in-procedure inspection of the knee calls for the use of a fixed spacer bearing. In practice, both options are not readily available to the physician and a postponement of the operation is likely, as it is neither practical nor possible to include a full range of both mobile and fixed spacer bearings of different sizes in a single sterile pack. Such a pack would simply be too costly for most patients, and would represent wasteful expenditure. Also, fixed spacer bearings are manufactured at the factory and the bearings are usually not removable from the tibial component. The Applicant is aware of fixed bearing components that have clip-on spacer bearings. It use is still limited as explained above.

A further disadvantage with known prostheses may occur in instances where, due to rotation and flexion forces acting upon the spacer bearing between the femoral component and the tibial component, these spacer bearings are likely to wear out or dislocate with injury e.g. ligamentous rupture or in due course through normal use. Further, and dependant on other loading conditions acting on the spacer bearing, for instance where an inappropriately sized spacer bearing is utilized, the spacer bearing can prematurely wear out or succumb to abnormal damage. In such instance, revision surgery may be indicated, and removal of one or both of the femoral component and tibial component may be indicated. If the femoral component and/or tibial component are both in an acceptable condition, such removal would be disadvantageous in that the patient may be subject to yet further bone resection, is exposed to the future possibility of aseptic loosening of the prosthetic components where such components were successfully inserted, and may prematurely become a candidate for TKA where previously a UKA could have remained a viable option.

A need thus exists for a knee prosthesis that is capable of uniform application to any given patient, as well as a knee prosthesis that is minimally invasive, has a greater longevity, a reduced cost and shorter post-operative recovery time than known prostheses.

OBJECTS OF THE INVENTION

It is an object of the present invention to provide a tibial component suitable for universal application in an orthopedic prosthesis that at least partially overcomes the disadvantages associated with known prostheses.

It is a further object of the present invention to provide a tibial component that is both new and inventive relative to the prior art.

SUMMARY OF THE INVENTION

According to one aspect of the present invention, there is provided a tibial component, suitable for use in an orthopedic prosthesis, which prosthesis includes a femoral component and a spacer bearing, the tibial component comprising:

- a planar tibial plate having an upper bearing surface and a lower attachment surface; and
- the tibial plate further having at least one spacer bearing attachment means for removably securing the spacer bearing to the tibial plate.

The spacer bearing may be removably secured to the tibial component in order to prevent movement of the spacer bearing relative to the tibial component. The movement aforementioned may be rotational movement, translational movement, or both.

There is further provided, according to the invention, for the spacer bearing to include a concave surface for receiving the femoral component. The concavity on the spacer bearing may define a curvature of substantially 6°. The spacer bearing may alternatively include a planar surface for receiving the femoral component. Where the femoral component is brought to bear upon the spacer bearing having a concave surface, the intended use is for a prosthetic assembly having